What is claimed is:

1. A color image processing apparatus comprises:

input image processing means for executing digital signal conversion processing and shading correction processing for respective one of RGB three-color image signals obtained by a color image sensor and for outputting said RGB three-color image signals therefrom;

memory means for sequentially storing respective one of said RGB three-color image signals with every one line thereof (the total number of pixels = N, where N is a natural number) when being outputted from said input image processing means;

first operation means arranged to cope with respective one of said three-color image signals for reading out one line of color image signals stored in said memory means and for sequentially calculating a moving average number n, where n is a natural number, of pixels with regard to a notable pixel i that is an i th pixel for $1 \leqq i \leqq N$, where i is a natural number, from a top pixel of said read color image signals by a predetermined numerical formula to thereby output results of said sequential calculations;

bit selection means arranged to cope with respective one of said three-color image signals for sequentially selecting said notable pixel i and reference pixels j for $i-n \leqq j \leqq i+n$, where j is a natural number, that are n pixels located before and after said notable pixel i, with said one line of color image signals read out by said first operation means, on the basis of said moving

average number n of pixels outputted from said first operation means to thereby output results of said sequential selection;

difference means arranged to cope with respective one of said three-color image signals for sequentially calculating an absolute value of a difference between an output level of said notable pixel i and respective of output levels of said reference pixels j outputted from said bit selection means to thereby output results of said sequential calculation;

threshold storing means for storing a predetermined threshold value;

decision means arranged to cope with respective one of said three-color image signals for sequentially outputting output signals of said notable pixel i and for comparing the absolute value outputted from said difference means with said threshold value stored in said threshold storing means to thereby sequentially output said output signals of said reference pixels j only when said absolute value of said difference between said output level of said notable pixel i and said output level of said respective one of said reference pixels j is smaller than said threshold value;

second operation means arranged to cope with respective one of said three-color image signals for executing a moving average processing of said output signals of said notable pixel i by using said output signals of said reference pixels j outputted from said decision means and for sequentially outputting, with every one line, said output signals that are

subjected to said moving average processing, in the form of color image signals; and,

output image processing means for applying a color transformation processing and an image format transformation processing to said respective one of said three-color image signals outputted from said second operation means to thereby combine said three-color image signals while outputting said combined three-color image signals.

2. The apparatus according to claim 1, wherein said bit selection means does not output said reference pixels j in the case where said reference pixels j come out of the region of $1 \leqq j \leqq N$.

3. The apparatus according to claim 2, wherein when a fraction is generated from the calculation of said moving average processing of number n of pixels, said first operation means omits said fraction.

4. The apparatus according to claim 3, wherein said first operation means calculates a difference ΔT between an output level of said notable image i and that of either one of neighboring pixels i+1 and i-1, which adjoin said notable pixel i, and thereafter computes said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta T + B),$$

where A and B are a constant, respectively.

5. The apparatus according to claim 3, wherein when $i \leqq N-2$ is established, said first operation means calculates

differences between an output level of said notable pixel i and that of respective of a plurality of neighboring pixels ranging from (i+1)th pixel to (i+k)th pixel for $2 \leqq k \leqq N-1$, where k is a natural number, which adjoins said notable pixel i, and thereafter calculates an average value ΔTa of said differences to thereby calculate said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta Ta + B),$$

where A and B are a constant, respectively.

6. The apparatus according to claim 3, wherein when $i \geqq 3$ is established, said first operation means calculates differences between an output level of said notable pixel i and that of respective of k neighboring pixels ranging from (i-1)th pixel to (i-k)th pixel for $2 \leqq k \leqq i-1$, where k is a natural number, which adjoins said notable pixel i, and thereafter calculates an average value ΔTa of said differences to thereby calculate said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta Ta + B),$$

where A and B are a constant, respectively.

7. A color image processing apparatus comprising:

input image processing means for executing digital signal conversion processing and shading correction processing for respective one of RGB three-color image signals obtained by a color image sensor and for outputting said three-color image signals therefrom;

memory means for sequentially storing respective of R and G two-color image signals in said three-color image signals with every one line thereof (the total number of pixels = N, where N is a natural number) when being outputted from said input image processing means;

first operation means arranged to cope with respective one of said R and G two-color image signals for reading out one line of color image signals stored in said memory means and for sequentially calculating a moving average number n, where n is a natural number, of pixels with regard to a notable pixel i that is an i th pixel for $1 \leqq i \leqq N$, where i is a natural number, from a top pixel of said read color image signals by a predetermined numerical formula to thereby output results of said sequential calculations;

bit selection means arranged to cope with respective one of said R and G two-color image signals for sequentially selecting said notable pixel i and reference pixels j for $i-n \leqq j \leqq i+n$, where j is a natural number, that are n pixels located before and after said notable pixel i, with said one line of color image signals read out by said first operation means, on the basis of said moving average number n of pixels outputted from said first operation means to thereby output results of said sequential selection;

difference means arranged to cope with respective one of said R and G two-color image signals for sequentially calculating an absolute value of a difference between an output

level of said notable pixel i and respective of output levels of said reference pixels j outputted from said bit selection means to thereby output results of said sequential calculation;

threshold storing means for storing a predetermined threshold value;

decision means arranged to cope with respective one of said R and G two-color image signals for sequentially outputting output signals of said notable pixel i and for comparing the absolute value outputted from said difference means with said threshold value stored in said threshold storing means to thereby sequentially output said output signals of said reference pixels j only when said absolute value of said difference between said output level of said notable pixel i and said output level of said respective one of said reference pixels j is smaller than said threshold value;

second operation means arranged to cope with respective one of said R and G two-color image signals for executing a moving average processing of said output signals of said notable pixel i by using said output signals of said reference pixels j outputted from said decision means and for sequentially outputting, with every one line, said output signals that are subjected to said moving average processing, in the form of color image signals; and,

output image processing means for applying a color transformation processing and an image format transformation processing to said three-color image signals including a B color

image signal outputted from said input image processing means and said R and G two-color image signals outputted from said second operation means to thereby combine said three-color image signals while outputting said combined three-color image signals.

8. The apparatus according to claim 7, wherein said bit selection means does not output said reference pixels j in the case where said reference pixels j come out of the region of $1 \leqq j \leqq N$.

9. The apparatus according to claim 8, wherein when a fraction is generated from the calculation of said moving average processing of number n of pixels, said first operation means omits said fraction.

10. The apparatus according to claim 9, wherein said first operation means calculates a difference ΔT between an output level of said notable image i and that of either one of neighboring pixels i+1 and i-1, which adjoin said notable pixel i, and thereafter computes said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A / (\Delta T + B),$$

where A and B are a constant, respectively.

11. The apparatus according to claim 9, wherein when $i \leqq N-2$ is established, said first operation means calculates differences between an output level of said notable pixel i and that of respective of a plurality of neighboring pixels ranging from (i+1)th pixel to (i+k)th pixel for $2 \leqq k \leqq N-1$, where k is

a natural number, which adjoins said notable pixel i, and thereafter calculates an average value ΔTa of said differences to thereby calculate said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta Ta + B),$$

where A and B are a constant, respectively.

12. The apparatus according to claim 9, wherein when $i \geqq 3$ is established, said first operation means calculates differences between an output level of said notable pixel i and that of respective of k neighboring pixels ranging from (i-1)th pixel to (i-k)th pixel for $2 \leqq k \leqq i-1$, where k is a natural number, which adjoins said notable pixel i, and thereafter calculates an average value ΔTa of said differences to thereby calculate said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta Ta + B),$$

where A and B are a constant, respectively.

13. A color image processing apparatus comprising:

input image processing means for executing digital signal conversion processing and shading correction processing for respective one of the RGB three-color image signals obtained by a color image sensor and for outputting said RGB three-color image signals therefrom;

memory means for sequentially storing G color image signal in said three-color image signals with every one line thereof (the total number of pixels = N, where N is a natural

number) when being outputted from said input image processing means;

first operation means for reading out one line of G color image signal stored in said memory means and for sequentially calculating a moving average number n, where n is a natural number, of pixels with regard to a notable pixel i that is an i th pixel for $1 \leqq i \leqq N$, where i is a natural number, from a top pixel of said read color image signals by a predetermined numerical formula to thereby output said moving average number n of pixels;

bit selection means for sequentially selecting said notable pixel i and reference pixels j for $i-n \leqq j \leqq i+n$, where j is a natural number, that are n pixels located before and after said notable pixel i, with said one line of G color image signal read out by said first operation means, on the basis of said moving average number n of pixels outputted from said first operation means to thereby output results of said sequential selection;

difference means for sequentially calculating an absolute value of a difference between an output level of said notable pixel i and respective of output levels of said reference pixels j outputted from said bit selection means to thereby output results of said sequential calculation;

threshold storage means for storing therein a specified threshold value;

decision means for sequentially outputting output signals of said notable pixel i and for comparing said absolute

value outputted from said difference means with said threshold value stored in said threshold storing means to thereby sequentially output said output signals of said reference pixels j only when said absolute value of said difference between said output level of said notable pixel i and said output level of said respective one of said reference pixels j is smaller than said threshold value;

second operation means for executing a moving average processing of said output signals of said notable pixel i by using said output signals of said reference pixels j outputted from said decision means and for sequentially outputting, with every one line, said output signals that are subjected to said moving average processing, in the form of a G color image signal; and,

output image processing means for applying a color transformation processing and an image format transformation processing to said three-color image signals including R and B color image signals outputted from said input image processing means and said G color image signal outputted from said second operation means to thereby combine said three-color image signals while outputting said combined three-color image signals.

14. The apparatus according to claim 13, wherein said bit selection means does not output said reference pixels j in the case where said reference pixels j come out of the region of $1 \leqq j \leqq N$.

15. The apparatus according to claim 14, wherein when a

fraction is generated from the calculation of said moving average processing of number n of pixels, said first operation means omits said fraction.

16. The apparatus according to claim 15, wherein said first operation means calculates a difference ΔT between an output level of said notable image i and that of either one of neighboring pixels i+1 and i-1, which adjoin said notable pixel i, and thereafter computes said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta T + B),$$

where A and B are a constant, respectively.

17. The apparatus according to claim 15, wherein when $i \leqq N-2$ is established, said first operation means calculates differences between an output level of said notable pixel i and that of respective of a plurality of neighboring pixels ranging from (i+1)th pixel to (i+k)th pixel for $2 \leqq k \leqq N-1$, where k is a natural number, which adjoins said notable pixel i, and thereafter calculates an average value ΔTa of said differences to thereby calculate said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta Ta + B),$$

where A and B are a constant, respectively.

18. The apparatus according to claim 15, wherein when $i \geqq 3$ is established, said first operation means calculates differences between an output level of said notable pixel i and that of respective of k neighboring pixels ranging from (i-1)th

pixel to (i-k)th pixel for $2 \leqq k \leqq i-1$, where k is a natural number, which adjoins said notable pixel i, and thereafter calculates an average value ΔTa of said differences to thereby calculate said moving average number n of pixels by the employment of the following formula, i.e.,

$$n = A/ (\Delta Ta + B),$$

where A and B are a constant, respectively.